

EXCLAIM2 - A tool for assessing climate change impacts on natural resources at a regional scale
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The potential impacts of climate change are important factors in natural resource planning and management. In the NSW Central West Catchment, this is particularly so given that this catchment has high ecological (e.g. the Macquarie Marshes) and productive (e.g. cotton farming) values. A well-designed decision support system (DSS) can be a useful tool to help natural resource managers and planners compile and integrate knowledge and information to identify the potential risks of climate change to system assets.

To assist the NSW Central West Catchment Management Authority (CMA) and the NSW Department of Environment, Climate Change and Water in considering climate change in their NRM planning processes, the prototype of Macquarie EXploring CLimate Impacts on Management (EXCLAIM) DSS was developed in 2007. The modelling approach used to integrate climate-hydrology-ecology linkages was a Bayesian network. The DSS enables users to explore how plausible climate scenarios could impact on hydrology, water quality, and ecological health.

Since the release of EXCLAIM, improved climate and hydrology models and ecological knowledge has been obtained. To represent this new knowledge, the underlying EXCLAIM prototype (EXCLAIM1) model was substantially improved, and EXCLAIM2 was released in October 2009.

This presentation will introduce EXCLAIM2, showing the five major components of the underlying model being:

- Climate scenarios (Murray-Darling Basin Sustainable Yields climate projections)
- Hydrology (IQQM model)
- Water quality (statistical data based on historical data)
- Inundation (SWIMP-inundation model)
- Ecological health response models
 - vegetation and bird habitat conditions (CCARP database)
 - fish habitat conditions (MFAT model)

Some key outcomes from the Macquarie Marshes case study are also discussed.